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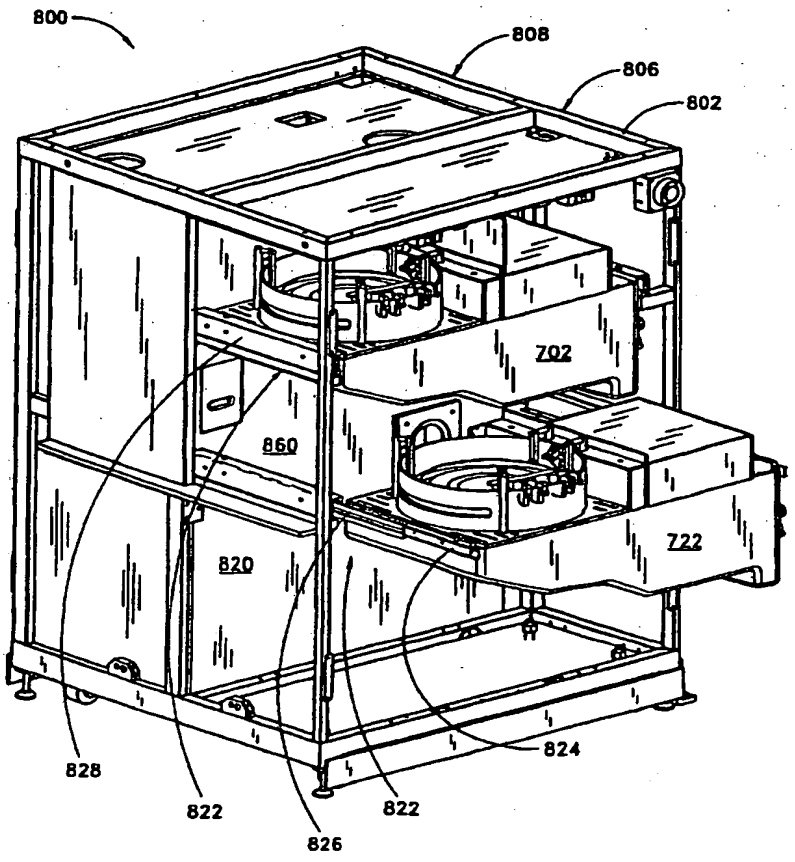
(54) Title: MEGASONIC CLEANER AND DRYER SYSTEM



(57) Abstract: An apparatus for drying a generally flat substrate (114) that has been cleaned has a rotatable support (110) for supporting the substrate (114), a substrate drying assembly (120), and a controller (147). The substrate drying assembly (120) includes a substrate drying assembly support arm (130), an outlet for applying liquid to an upper surface of the substrate (114), and an outlet for applying a drying vapor to the upper surface of the substrate (114). The substrate drying assembly (120) is configured to position the liquid applying outlet and to position the vapor applying outlet above a portion of the substrate (114). The controller (147) causes the substrate drying assembly (120) to be retracted over the upper surface of the substrate (114) at a faster rate near a center of the substrate (114) than near a periphery of the substrate (114).

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H01L21/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H01L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	DE 198 33 197 A (TOKYO ELECTRON LTD) 18 February 1999 (1999-02-18) figure 1 page 1, line 5 - line 9 page 1, line 32 - line 43 page 2, line 40 -page 7, line 33	1,29,49 2-28, 30-48
Y	EP 0 905 747 A (IMEC INTER UNI MICRO ELECTR) 31 March 1999 (1999-03-31) cited in the application figure 1 paragraph '0034!	2-28, 30-48

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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"&" document member of the same patent family

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25 November 2002	09/12/2002

Name and mailing address of the ISA	Authorized officer
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...formation on patent family members

Int... ...onal Application No
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 19833197 A	18-02-1999	JP 11054471 A	26-02-1999
		DE 19833197 A1	18-02-1999
		US 6431184 B1	13-08-2002
EP 0905747 A	31-03-1999	WO 9916109 A1	01-04-1999
		EP 0905747 A1	31-03-1999
		EP 0970511 A1	12-01-2000
		JP 11233481 A	27-08-1999
		JP 2001506061 T	08-05-2001
		US 2002125212 A1	12-09-2002
		US 2002130106 A1	19-09-2002
		US 2001042559 A1	22-11-2001
		US 6398975 B1	04-06-2002
		US 2002148483 A1	17-10-2002
		EP 0905746 A1	31-03-1999
		EP 0905748 A1	31-03-1999
		US 6261377 B1	17-07-2001
		US 6334902 B1	01-01-2002
		US 2001022186 A1	20-09-2001